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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,259	01/16/2002	Masatoshi Nakagawa	36856.606	3425

7590 01/21/2004  
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Suite 312  
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EXAMINER

KIM, PAUL D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 01/21/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/046,259

Applicant(s)

NAKAGAWA ET AL.

Examiner

Paul D Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-13, 16, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 14, 15, 17 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/654,114.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --A METHOD FOR MANUFACTURING A SURFACE ACOUSTIC WAVE DEVICE--.

### *Claim Objections*

2. Claims 17-19 are objected to because of the following informalities:

Re. Claim 17: The phrase "a portion of the thin metallic film" recited in lines 3-4 is not clear as to what the thin metallic film is indicated. Is it the first thin metallic film or second thin metallic film? Appropriate correction is required.

The phrase "a side" recited in line 4 should be --a side--.

Re. Claim 18: The phrase "the metallic thin film" recited in lines 1-2 is not clear as to what the thin metallic film is indicated. Is it the first thin metallic film or second thin metallic film?

Also, the phrase "the laminated thin film includes... component" recited in lines 3-6 is objected because when materials recited in a claim are so related as to constitute a proper **Markush group**, they may be recited in the conventional manner, or alternatively. For example, if "wherein R is a material selected from the group consisting

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of A, B, C and D" is a proper limitation, then "wherein R is A, B, C or D" shall also be considered proper (see MPEP 2173.05(h)).

Re. Claim 19: The phrase "the thickness" recited in lines 1-2 should be --a thickness--.

3. Claim 20 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. There is no such a limitation such as "wherein the piezoelectric plate and the at least one interdigital electrode are arranged" recited in lines 1-2.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "wherein the piezoelectric plate and the at least one interdigital electrode are arranged" recited in lines 1-2 renders the claimed vague and indefinite. It is unclear as to where and how the piezoelectric plate and the at least one interdigital electrode are arranged.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 11, 12, 16, 19 and 20 are, as best understood in view of the rejections under 112 second paragraphs, rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan et al. (US PAT. 5,281,485) in view of Fujimoto et al. (US PAT. 6,088,462).

Colgan et al. teach a process of making an electrical structure comprising steps of: providing a substrate ( $\text{SiO}_2$ ); forming a first metallic thin film (Ta (N)) on the substrate; and forming a second metallic thin film including a tantalum such as  $\alpha$ -tantalum on the first metallic thin film as shown in Fig. 1B (see also col. 1, lines 19-24, col. 3, lines 18-56 and col. 5, line 44 to col. 6, line 48).

However, Colgan et al. do not teach a piezoelectric plate to form the first and second metallic thin films. Fujimoto et al. teach a process of making a surface acoustic wave device comprising steps of providing a substrate (2) made of piezoelectric and forming at least one metallic thin film such as tantalum on the substrate in order to provide superior stable temperature characteristics as shown in Fig. 1A (see also col. 1, lines 15-65 and col. 5, line 5 to col. 6, line 46). Therefore, it would also have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the substrate of Colgan et al. by  $\alpha$ -tantalum on the substrate as taught by Fujimoto et al. in order to provide superior stable temperature characteristics.

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As per claim 12 Colgan et al. teach that the metallic thin films are formed by sputtering disclosed in col. 5, line 44 to col. 6, line 48.

As per claim 16 Colgan et al. teach that the first metallic thin film includes a tantalum as shown in Fig. 1B.

As per claim 19 Colgan et al. teach that a thickness of the first metallic thin film is about 3.2 nm.

As best understood in view of the rejections under 112 second paragraphs for claim 20 Fujimoto et al. teach that interdigital electrode is formed on the piezoelectric substrate as shown in Fig. 1A.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan et al. in view of Fujimoto et al., and further in view of Kimura et al. (US PAT. 5,929,723).

Colgan et al., modified by Fujimoto et al., teach all of the limitations except vapor deposition to form the metallic thin films. Kimura et al. teach a process of making a surface acoustic wave device including a process of forming a thin metallic film such as tantalum on a substrate by vapor deposition in order to deposit the metallic layer evenly on the substrate (see also, col. 1, lines 32-39). Therefore, it would also have been obvious at the time the invention was made to a person having ordinary skill in the art to modify deposition process of Colgan et al., modified by Fujimoto et al., by vacuum deposition as taught by Kimura et al. in order to deposit the metallic layer evenly on the substrate.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Colgan et al. (US PAT. 5,221,449) and Arcidiacono et al. (US

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PAT. 4,410,867) are cited to further show the state of the art with respect to method of forming alpha tantalum.

***Allowable Subject Matter***

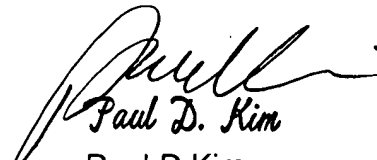
10. Claims 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 17 and 18 would be allowable if rewritten to overcome the objections, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D Kim whose telephone number is 703-308-8356. The examiner can normally be reached on Tuesday-Friday between 8:00 AM to 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5648.

  
Paul D. Kim  
Paul D Kim  
Examiner  
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